

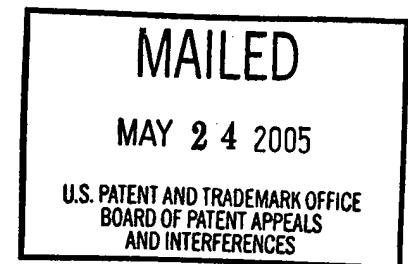
The opinion in support of the decision being entered today was  
not written for publication and is not binding precedent of the Board

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte DANIEL LOPEZ  
and  
FRANK SCHELLENBERG



Appeal No. 2005-0771  
Application 09/249,728

ON BRIEF

Before THOMAS, BARRETT, and RUGGIERO, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's final  
rejection of claims 1-22.

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Representative independent claim 1 is reproduced below:

1. A method for detecting defects in a reticle used in integrated circuit chip fabrication, said method comprising:
  - (a) obtaining digital image data corresponding to an image of a reticle;
  - (b) processing the digital image data according to predetermined criteria to identify defects; and
  - (c) simulating a response that would be produced if the reticle were to be utilized in a photolithographic system, by processing the digital image data corresponding to the reticle.

The following references are relied on by the examiner:

Aloni et al. (Aloni)	5,619,429	Apr. 8, 1997
Mansfield et al. (Mansfield)	5,965,306	Oct. 12, 1999 (filing date Oct. 15, 1997)
Neary et al. (Neary)	6,016,357	Jan. 18, 2000 (filing date June 16, 1997)
Medvedeva et al. (Mededeva)	6,171,731	Jan. 9, 2001 (filing date Jan. 20, 1999)

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Claims 1-13, 16, 17, and 19 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Mansfield. In combination with Aloni, Mansfield is also utilized to reject claims 14, 15, 18 and 20-22 under 35 U.S.C. § 103. Claims 1-4, 6-11, 13-17, 19, 21 and 22 also stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Aloni in view of Neary. To this last stated rejection, the examiner adds Mansfield as to claims 5 and 12. Finally, claims 18 and 20 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Aloni in view of Neary, further in view of Medvedeva.

Rather than repeat the positions of the appellants and the examiner, reference is made to the brief and reply brief for the appellants' positions, and to the final rejection and answer for the examiner's positions.

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## OPINION

We reverse each of the separately stated rejections of the claims on appeal, essentially for the reasons set forth by appellants in the principal brief on appeal, since we do not sustain the rejection of any independent claim over any reference or combination of references.

At the outset, we note that method independent claim 1 corresponds to computer-readable medium independent claim 17 and apparatus independent claim 21. In a similar manner, the subject matter of method independent claim 9 corresponds to computer-readable medium independent claim 19 and apparatus independent claim 22. For purposes of our reversal, the subject matter of independent claim 1 is representative of the common basis of our reasoning.

In setting the proper context of our subsequent discussion, we observe initially that the admitted prior art discussed at specification pages 2 and 3 as well as the extensive discussion in the body of the preferred

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embodiment at the bottom of page 6 of the specification as filed reveals that the subject matter of obtaining digital image data corresponding to an image of a reticle and processing the digital image data according to predetermined criteria to identify defects, which are respectively clauses (a) and (b) of each corresponding independent claim on appeal, appear to be in the prior art. As revealed in the Summary of the Invention in the brief at page 4, lines 3-6, it is stated that "in the preferred embodiment of the invention, such off-the-shelf [photolithography simulation] software is modified to permit analysis of scanned-in image data for an actual reticle, as opposed to merely simulating an idealized design representation of the reticle." This is discussed in detail at the bottom of specification page 10 at lines 21-29:

Prior to the present invention, lithography simulation programs have been used mainly for reticle design, in which a reticle is designed on a CADS and the simulator then simulates the aerial image that would be produced by a proposed design. . . . Because the existing simulators were used for design, they often will require a certain amount of modification for dealing with scanned in image data for an actual reticle, rather than reticle design data.

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As to the rejection of independent claims 1, 9, 17 and 19 under 35 U.S.C. § 102 over Mansfield, we agree with appellants' observations we reproduce below from page 11 of the principal brief of appeal:

In short, Mansfield only appears to discuss the analysis of pre-identified defects using optical tools in order to inspect a given mask. In his preferred embodiment, Mansfield uses an AIMS microscope to simulate (or emulate) the response of a pre-defined photolithographic system. However, this simulation is optical, as can clearly be seen from a review of Mansfield's claim 27 ("wherein said lithographic images are aerial images, said aerial images being generated by an imaging system that emulates a lithographic exposure tool, said imaging system being referred to as an aerial image measurement system (AIMS)" [emphases added]). The optical nature of such AIMS simulation is further evidenced by the IBM article titled, "Development and Application of a New Tool for Lithographic Mask Evaluation, the Stepper Equivalent Aerial Image Measurement System, AIMS", previously submitted by Appellants and now cited by the Examiner. Such optical simulation has nothing to [sic] at all to do with processing any digital image data to simulate a response. [Our emphasis added in this last sentence.]

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Even if we assume for the sake of argument the combination of Mansfield and Aloni is proper within 35 U.S.C. § 103, the additional rejection of independent claims 21 and 22 utilizing Mansfield is reversed for corresponding reasons. The examiner's rationale for utilizing Aloni here is solely for the purpose of disclosing a processor for executing stored program instructions.

We turn next to the rejection of all independent claims on appeal, claims 1, 9, 17, 19, 21 and 22 in the second stated rejection under 35 U.S.C. § 103 utilizing Aloni and Neary. We also agree with appellants' remarks in summary form with respect to all these independent claims that we reproduce from the top of page 14 and the top of page 20 respectively of the principal brief on appeal:

In short, neither Aloni or Neary discloses or suggests the feature of simulating a response that would be produced if a reticle (or portion thereof) were to be utilized in a photolithographic system, by processing digital image data corresponding to an image of the reticle or portion thereof. Accordingly, no permissible combination of these two references would have rendered the present invention obvious.

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Appellants' remarks reproduced here essentially set forth the error in the examiner's analysis. Although we are sympathetic with the examiner's views expressed in the Responsive Arguments portion at pages 4-7 of the answer, it appears to us that the examiner's basic positions with respect to each of the rejections we have just discussed for each of the noted independent claims proceeds from an incorrect starting point. To the extent Mansfield and Neary rely upon the so-called prior art AIMS system, our review of the Budd article relating to this system we discovered in the application file reveals the essence of the correctness of appellants' positions. AIMS essentially converts the results of an optical simulation to digital data yet does not perform simulation on the imaged digital data of an actual reticle as required by the claims on appeal. In other words, the simulation that is taught does not occur with respect to an actual defect but focuses upon what appellants regard as the prior art of simulating a design of a reticle. Each independent claim on appeal does in its own way generally reflect this distinction which is the basic distinction of appellants' disclosure over the prior art anyway.

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Notwithstanding this reversal of all outstanding rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103, the examiner's manner in which the AIMS system was relied upon in the Responsive Arguments portion of the answer as evidenced by the Budd article is not to be encouraged. This article, the focus of the examiner's remarks and the basis on which the reply brief was filed as well, has not been formally relied upon by the examiner in the statement of any rejection of the claims on appeal. Appellants have not complained in the reply brief of the examiner's improper reliance upon this article in the answer. On the other hand, it appears to us that prosecution likely would have proceeded on a more normal basis if the examiner had formally relied upon the Budd article before the appellate process had begun, thus potentially avoiding this appeal.

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In view of the foregoing, the decision of the examiner rejecting various claims under 35 U.S.C. § 102 and 35 U.S.C. § 103 is reversed.

REVERSED

  
James D. Thomas )  
Administrative Patent Judge )  
)  
  
Lee E. Barrett )  
Administrative Patent Judge )  
BOARD OF PATENT  
APPEALS AND  
INTERFERENCES  
)  
  
Joseph F. Ruggiero )  
Administrative Patent Judge )

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